



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,534	09/16/2003	Sathya R. Narayanan	MATI-224US	3592
23122	7590	12/08/2006	EXAMINER	
RATNERPRESTIA			WIN, AUNG T	
P O BOX 980			ART UNIT	PAPER NUMBER
VALLEY FORGE, PA 19482-0980			2617	

DATE MAILED: 12/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/663,534	NARAYANAN ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Aung T. Win	2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 22 December 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-6 and 11-20 is/are rejected.
- 7) Claim(s) 7-10 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date. _____ .	6) <input type="checkbox"/> Other: _____ .

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4, 13 & 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4, 13 & 18 recite the limitation "maintaining the neighboring status database in a data link layer". It is unclear to examiner what "maintaining in the data link layer" means since the claim does not set forth any maintaining steps in a data link layer involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 4, 13 & 18 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App.

1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

3. Claims 19 & 20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims recite “computer readable **carrier**” which appears to examiner that non-statutory subject matter “signal” i.e., “carrier” is being claimed.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 3, 5, 6, 11, 12, 14, 15, 16 & 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US006982960B2) in view of Garcia-Luna-Aceves et al. (US007046639B2).

4.1 Regarding Claims 1 & 19, Lee discloses a data communication method for use in wireless network [network 100: See Figures] [Column 3, Line 3-19] having Root Node 350 [Figure 8], the method comprising the steps of:

Determining a DEPTH (claimed level) [Figure 8] for each of a plurality of nodes (i.e., wireless devices) of the wireless network with respect to the Root Node [Column 3, Line 63- Column 4, Line 8] [Also see constructing network 100 with one Root Node i.e., parent node in Figures 4, 5, 6 & 7 and respective disclosures];

Determining for each of the plurality of wireless devices neighboring ones of the plurality of wireless devices having adjacent DEPTHS (adjacent levels) [See Parent & Child nodes: Figure 8]; and

Transferring data messages between one of the plurality of wireless devices and the Root Node sequentially by level through at least one other one of the plurality of wireless devices (i.e., transferring up streams and down streams data message to and from the Root Note via successive adjacent DEPTHS: Figure 16). Lee does not explicitly teach that Root Node as disclosed above is an access point.

Garcia discloses multi-hop wireless network and method for routing messages as claimed wherein the method teaches that central node is an access point [Figure 4] [Column 5, Line 45- Column 6, Line 25].

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention of made to modify Lee's method such that the Rood Node is designated as an access point as taught by Garcia. One of ordinary skill in the art at the time of invention of made to do this to utilize the common channel within the network comprising one Root Node i.e., access point [Garcia: Column 6, Line 2].

4.2 Claim 2 is rejected for the same reason as stated above in Claim 1 rejection.

Modified method further teaches the level determining step comprises at least the steps of: at each wireless device in the wireless network, sending a broadcast message; receiving broadcast messages from neighboring ones of the plurality of wireless devices, the broadcast messages indicating a neighbor level for each of the neighboring wireless devices; and determining the level for the wireless device responsive to the neighbor levels [Lee: Setting DEPTH for the node: Column 4, Line 9 – 58] [Lee: Block 471 in Figure 4]

4.3 Claim 3 & 20 are rejected for the same reason as stated above in Claims 1 & 2 rejections. Modified method further teaches the step of determining the level for the wireless device responsive to the neighbor levels comprises:

Building a neighbor status database including the neighboring levels from the received broadcast messages (i.e., Range List comprising information about the DEPTH of the neighbor) [Lee: Column 3, Line 48-60];

Identifying the neighboring level having a lowest initialized value (i.e., minimum depth) [Lee: Column 4, Line 50-54]; and assigning a level one greater than the neighboring level having the lowest initialized value (minimum depth plus one) [Lee: Block 471 in Figure 4].

4.4 Claim 5 is rejected for the same reason as stated above in Claims 1 rejection. Modified method further teaches the step comprising updating the level for each of the plurality wireless devices at a predefined interval [Column 5, Line 60-65] [See Figure 9].

4.5 Claim 6 is rejected for the same reason as stated above in Claim 1 rejection. Modified method teaches claimed step because modified network is multi-hop ad-hoc network employing routing messages sequentially as stated in Claim 1 rejection.

4.6 Claim 11 is rejected for the same reason as stated above in Claims 1 & 2 rejections because claimed method comprises processing steps substantially close to corresponding steps of Claims 1 & 2 methods.

4.7 Claim 12 is rejected for the same reason as stated above in Claim 3 rejection because claimed method comprises processing steps substantially close to corresponding steps of Claim 3 method.

4.8 Claims 14 & 16 are rejected for the same reason as stated above in Claims 1 & 2 rejections because executing steps corresponding to claimed means substantially close to corresponding steps of Claims 1 & 2 methods. At the time of invention of made, it is obvious to one of ordinary skill in the art that wireless devices in modified system must have claimed transceiver, claimed controller and memory accordingly in order to process and store information as claimed.

4.9 Claim 15 is rejected for the same reason as stated above in Claim 3 rejection because executing steps corresponding to claimed means substantially close to corresponding steps of Claim 3.

4.10 Claim 17 is an apparatus claim rejected for the same reason as stated above in Claim 1 rejection because claimed means comprises claimed steps substantially close to corresponding step of Claim 1. It is obvious to one of ordinary skill in the art that, modified system must have comprise corresponding claimed means in order to execute claimed steps as stated above in Claim 1 rejection.

5. In light of 112 rejection as stated above, claims 4, 13 & 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US006982960B2) in view of Garcia-Luna-Aceves et al. (US007046639B2), further in view of Kulikov et al. (US20020122410A1).

5.1 Regarding Claims 4, 13 & 18, modified method discloses neighboring status database i.e., range list as stated above in Claim 3 rejection. The modified method does not explicitly disclose data link layer. Kulikov discloses multi-hop ad-hoc wireless network [See Figures] and further teaches that neighboring table is updated by data-link layer protocol [0145].

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention of made to modify the method to update and maintain the neighboring table in the data link layer as taught by Kulikov to modify as claimed. One of ordinary skill in the art would have been motivated to do this to implement efficient routing method in ad-hoc network [Kulikov: 0093 Line 16-21].

***Allowable Subject Matter***

Claims 7-10 are objected to as being dependent upon a rejected base claim 1, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chen	US006744740B2
Ebara et al.	US20020137459A1
Srikrishna et al.	US007031293B1
Shearer, III	US20030058826A1

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aung T. Win whose telephone number is (571) 272-7549. The examiner can normally be reached on 8:30 AM - 5:00 PM.

Art Unit: 2617

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Aung T. Win  
Group Art Unit 2617  
December 1, 2006

  
DUC M. NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600